THE OPENING CEREMONY.

THE opening ceremony of the Building Trades Exhibition at Olympia (which will remain open until April 26) took place on Tuesday. The chair was occupied by MR. H. GREVILLE MONTGOMERY (the organiser of the Exhibition), who was supported by MR. J. W. SIMPSON (President of the Royal Institute of British Architects), MR. A. J. FORSDIKE (President of the National Federation of Building Trades' Employers), SIR CHARLES T. RUTHEN (President of the Society of Architects), and MR. E. FIANDER ETCHELLS (President of the Concrete Institute).

In a few preliminary remarks, MR. MONTGOMERY said there had been some question as to the advisability of holding the Exhibition two years in succession, but this year there had been a demand for considerably more space than could be allotted. The lectures given during the run of the Exhibition had been considerably extended, and the cinema would also be used in this connection to show the manufacture of different materials and building work in progress. This year, also, the architectural societies had combined in their efforts to make the Exhibition a success, and had formed a Welcome Club for the entertainment of architects visiting the show. He was glad to think that the Building Trades Exhibition was helping in a small way to bring about the permanent fusion of the architectural bodies which was so desirable.

In declaring the Exhibition open, Mr. J. W. SIMPSON said last year the Exhibition was formally opened by Dr. Addison, at that time Minister of Health. That this year the duty should have been transferred to himself might be fairly taken as significant of changing conditions. A fair trial had been given to politicians in their adventures into the field of technical commerce, and public opinion was fairly unanimous as to their disastrous failure.

He was well aware that it was deemed necessary during the fighting years to give free rein to extravagance in the Government departments. But the war was long since at an end; the worker now replaced the fighter. Of all workers none was more valuable to the community than the builder; his craft reached and affected every section of social life, and the building industry, with its ancillary manufactures, employed a huge proportion of the population.

It would be idle to pretend that all was well with the industry, but some comfort might be taken from a comparison of its present state with that which existed last year. On that occasion Dr. Addison announced his intention to expedite housing by enforcing drastic measures against all who should venture to indulge in what he was pleased to term "luxury" buildings; a proceeding which might be compared with stopping the minute hand of a watch, in the hope of thereby accelerating the speed of the seconds hand. The result had been that the minute hand of general building had been checked, and was still checked by foolish restriction and regulations; the increased employment which would indicate rapid progress in housing was not perceptible. There was only one way to enlarge the scope for employment, and that was to free the industry from all Government interference and encourage every kind of building operation.

For all that, signs of improvement were not wanting; there was a tendency to fall in prices; in most trades the cost of production was reduced, for the best of all reasons that better value was given by workmen for wages received. The understanding between employers and operatives had steadily improved, despite occasional differences. The master builder of the higher type was now prominent, who honestly desired good personal relations with the men and their unions, who did not regard them as mere "hands" for his service, but as fulfilling, equally with himself, functions which were an essential part of a single organisation. To such men the operatives were becoming responsive, slowly at first, for they had long-established suspicions to overcome, but the leaven was working. The convocation of employers, operatives and professional men in the Whitley Council was beneficial in this respect, but the machine was rather cumbrous, meetings are infrequent, and it was not always easy for members to attend them. In London it had been supplemented by a Building Industries' Consultative Board, composed of representatives of the employers, operatives, architects, and surveyors, which could be called at a few days' notice; and it had brought them all into most friendly intercourse. He would like to see such intimate and familiar gatherings established throughout the country, where the difficulties which affected them all could be discussed, without the reserve attending formal debate.

To an audience composed of those interested in the technical processes of building, it was worth while to put the question, "How should a building be paid for?" Under existing conditions tenders were invited by the owner from builders, one of these was accepted, and a contract was made between the owner and the party tendering. If the actual cost proved to be lower than the tender the difference went into the builder's pocket, if higher into that of the owner. The method had the merit of simplicity, it was in effect a bet on an unforeseen and unascertainable future where the layer of the bet accepted the risk. It differed essentially from the process of sale and purchase, where goods of known cost to the vendor are exchanged for an agreed sum.

That element of risk was of vital importance to both the employer and the operatives concerned with the erection of the building. Although the latter neither suffered by any ultimate loss, nor benefited by the profit, on a transaction to which they were not parties, they largely controlled both results; but, while their wages were diminished by an amount which the builder could pay, had he not to reserve it as a margin to cover possible loss, they were not increased if the enterprise proved remunerative, though the earners had contributed to its success. Obviously, if this difficulty could be removed wages could be higher, and builders would be delighted to pay them.

First, he would like to see the risk of loss removed from the shoulders of the builder, and, incidentally, from those of the operatives. It could not, for obvious reasons, be borne by the owner. If a man had but £3,000 and wished to build a house, it was useless to present him on its completion with a bill for an additional £500 or £300 which he had not got. On the other hand, the actual cost, whether less or more than £3,000, was the price which he should properly pay for his house. Let them, then, transform the contractor from a speculator in building operations—uncertain whether for all his skill and experience the work he undertook might not cost him more than he received for it—into a professional Director of Building, remunerated for his services according to his ability. Here was a certain reduction effected on the normal margin for profit; for a man sure of remuneration would work for less than he whose gains on one transaction must be large enough to cover his losses on others. The functions of such a Director would be very much those of the present master builder, buying material, employing labour, and supervising the building. He would give to the owner an estimate of the total cost, and on his skill and success in not exceeding his estimates his reputation and future employment would depend. There was still the risk of such an excess, and that he suggested was insuperable, and could be taken by an insurance company at a far lower amount than the percentage allowed by an individual contractor. It would be the duty of the Director of Building to advise the owner as to the amount to insure, and the greater his skill and experience the less would be the margin needed. He suggested that such insurances might be sound and profitable investments for the trade unions, and the business a direct encouragement to their members to prevent unnecessary cost. Certain American builders had already become professional Directors of Building, on the lines he had indicated, and they had made a great reputation by the extraordinary closeness of their estimates to the cost of the work they undertook.

To his mind, one of the chief obstacles in the way of better labour conditions was the hopelessly illogical and unsound system of paying a man, not for the work he did, but for the time he took to do it. The remedy lay in a system

of fixed rates for piecework. The great objection of the unions to such a system was based on its abuse by contractors cutting competitive rates in the past; but they had to recognise the advent of the different class of employer, animated by other motives than those of mere profit, and worthy of the operatives' confidence. The actual rates should be determined, and revised annually, like the "Série de Prix" in France, by the institutes of architects and surveyors, who had no personal interests to bias them, rather than by the usual ding-dong bargaining between the parties concerned; and they should be formally approved by the Government as the standard of payment.

The morals of the employer of to-day were higher than those of his predecessors. The operative, also, was of higher intelligence and education, and not so much influenced by the question of wages as was generally assumed, and much more by a vague desire for a better standard of existence. The most important thing at the present time was to provide the artisan with an intellectual interest in his work irrespective of its evident utility, with some subjective reason which would satisfy his mind with regard to the mechanical operations. If it were clear that these processes were part of an ultimate objective of common benefit to all concerned, and that by performing them quickly and well he was contributing to the prosperity of the whole union of workers to which he belonged, he did not doubt that the operative would respond to such a motive with far more energy than he would to that of his private advantage.

By the adoption of piece-work, properly remunerated, the income of the worker would be limited only by his own ability to earn it; by directly associating the union with the financial profit of building they would be interested in keeping down cost and discouraging slackness in their members; and by freeing the builder from risk of loss, the interests of the owner would be identified with his own professional reputation.

MR. A. J. FORSDIKE, in proposing a vote of thanks to Mr. Simpson, said there was at present an attempt by some of the operatives to wipe out the building employer. The Building Guilds were already engaged on house building, and he understood they now intended at an early date to take on other classes of building work. The builders believed it was not in the best interests of the community that that should take place. There was a better feeling being shown on the part of some of the operatives, and there was an earnest desire in some cases to do a fair day's work for a fair day's pay. They all regretted the enormous cost of building, which had been brought about owing to circumstances over which architects and builders had no control, and they believed that was the cause of a great deal of building work being stopped. No one was more anxious than the builders to see the cost go down, but, at the same time, no builder wished the building trade operatives to revert to the conditions which obtained in 1914. They believed the standard of living should be raised above that level, and that the operatives should be given a fair remuneration. But at present the workmen were not giving a fair return for the wages paid, and it would be in the best interests of the trade if a system of bonus on output were introduced. With regard to housing, the present shortage was due to the mismanagement of the Government, which had made it impossible for private enterprise to carry on. Enormous difficulties were put in the way of local authorities, and many of the schemes were being shelved by the Ministry of Health on the grounds of the high cost and in anticipation of the cost being reduced in the near future. But 90 per cent. of the housing schemes were being built on a contract that provided for a reduction in the contract price in the event of the cost of labour and materials being reduced. Why, therefore, should they be held up?

SIR CHARLES T. RUTHEN, in seconding the vote, said he thought many would be inclined to disagree with Mr. Simpson's scheme for payment for building work, and say that a tender should have a certain amount of fixity. Under Mr. Simpson's proposal, if the work cost less than the tender the contractor would take the whole amount of the tender, but if the cost exceeded the tender the client would pay the increase. After all, the architect and the builder had a certain responsibility, and it was the duty of the architect to be able to tell the building owner beforehand whether a building would be likely to exceed the sum he was prepared to pay for it.

MR. E. FIANDER ETCHELLS made an interesting speech in support of the vote of thanks, in the course of which he said the fear of rate-cutting lay at the bottom of "ca' canny," and the workers' objection to piece-work, but although an employer who adopted such tactics might make more profit for a time, he was bound to lose in the long run owing to the discontent that would arise among the workmen. The workers should be given a fair wage, and the employer should make his profit by his own skill in management. Rate-cutting could only result in less output, and a low output would affect the employer's profit much more than the payment of a fair wage. Architects should give more consideration to new forms of construction, and not confine their attention so much to forms of building that had been found suitable in past ages. In London factory buildings required the maximum of window space, but such buildings were being put up in stone with small windows, similar to buildings in ancient Greece.

"The Builder" Stand (No. 116, Row F).

[This stand was carried out by Messrs. Tredegars, Ltd., who also supplied the period furniture and the electric lighting fittings.]

A GENERAL IMPRESSION.

THE means of contact between the many interests concerned in building, and the opportunities offered for friendly meeting which the occasion develops, are no small item in the value of such exhibitions. Architects, builders, manufacturers, and the general public are brought together under auspices which are very useful in leading towards mutual understanding, and tend to consolidate the relationship which a too narrow approach and a selfish spirit has tended to hinder. A directly educational feature is also bestowed on this Exhibition by an exhibition of students' work from all the leading schools, and in the lectures which form part of the programme. Such an exhibition should be a source of useful information to the architect in regard to materials for construction, especially those which include features showing sensitiveness to surface expression and treatment of congenial character. He will naturally look to such an exhibition to offer him information and resource as to the best treatment for materials, both on the side of construction and that of appearance. While on the former there is much to illustrate the enterprise and invention which has been developed in recent years, and made of use in housing schemes, in the latter there is still a good deal of ground to be made up. While we see instances here and there of a material the surface of which is agreeable and characteristic, many others lack any feature beyond utilitarian purpose. There is actually no reason whatever why concrete and other materials should not include qualities of texture and surface treatment which would give them more agreeable appearance than is the case at present with some of them. And here the architect can exert an influence in giving this added resource to economical construction. There seems rather a waste of materials, and we miss those nice pavilions designed by Sir E. Lutyens and other architects which were shown some years ago, and which revealed the resources of treatment of exterior surfaces and a real appreciation of the resources lying in materials to this end. There is perhaps less to be found this year in a direction to assist the architect in his labours, though the exhibition is in many ways varied and extensive.

One firm exhibiting show their ceiling and architectural decorations, which have been made of use in housing schemes and have the approval of the Ministry of Health for State-aided housing. Though there is a good standard of excellence in the turnout of the work, we could wish to see a little more character in the ornament growing more directly out of the material, which we should have thought would have suggested its own treatment as well as the interpretation of other materials, such as wood or plaster. There is room, we think, for more care in resisting ornament for its own sake, which tends to become in excess of the proportions which its architectural setting requires. Where repetition is so constant as in a panelled ceiling something a little more simple but containing really vital design in structure is preferable—and so much more difficult—than the mere accumulation of detail. Here again conference with architects will lead, no doubt, to these requirements receiving consideration. The advantage of such consultation between the architect and the manufacturer of such materials would be very helpful towards retaining that proportion and restraint in ornament which is still such a crying want.

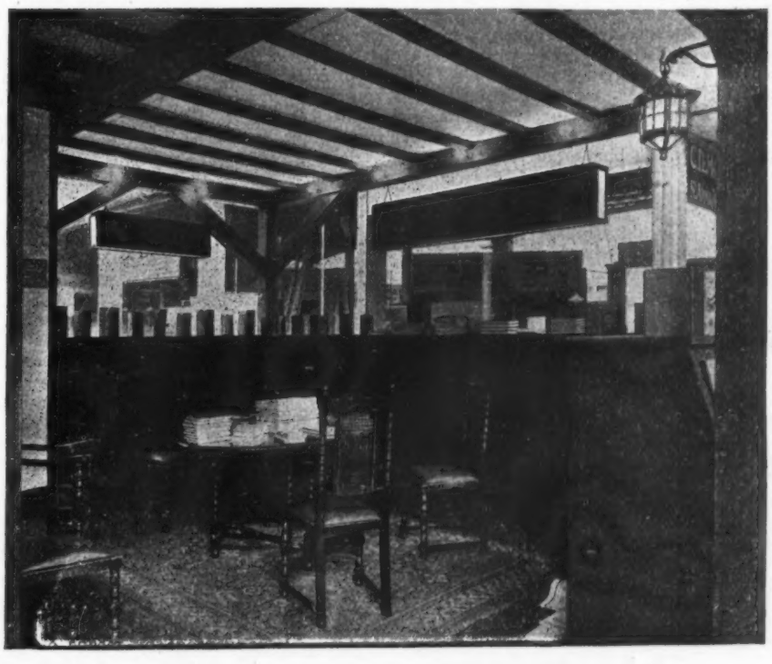
Another firm exhibit a slow-setting cement similar to Keene's, the surface of which is agreeable and not unlike stone in appearance. Time can only test the really permanent character and freedom from deterioration of the atmosphere in such materials. We were noting recently the extent of disintegration of the stonework in the convent built by Bentley in the Hammersmith-road, during the last twenty years, and therefore we cannot claim any security for the permanence of stone.

In looking at either industrial or craft exhibits the question arises as to the desirability of imitating the forms that grow out of one material in another. The porcelain or other tiling in a bathroom takes the form which the setting of the tile enforces, and the effect arises out of the natural construction of the material. In paper or composition alternatives made for the same purpose we see the imitation of the actual tile in hard ruled lines, without any reason for it, and the mechanical result lying in such imitation is quite disagreeable. We suppose that this is done to meet what is believed to be the public demand. How much better it would be if these cheaper methods were made to exhibit some quality of their own, other than mere mechanical imitation. Some live treatment, for instance, not rigid like the sham lines to represent tiling, but with some play and character in them identified with and growing out of the material. An enterprising firm that would seek for its own expression would lessen competition, which increases in proportion to the sameness between materials, which identifies them only with their cost. In the same way we see in wall-papers the effects of skin and leather reproduced, and in many other ways one material borrows the forms of another, so, as it were, lessening the intelligence in the use of the material. Against our opinion will be quoted the imitation of graining and marbling in woodwork, and no doubt, carried as far as it was by an older and more personal craftsmanship, the results did exhibit qualities of their own passing far beyond mere imitation, but we fear that this justification cannot be claimed for much of the modern work. The principle is, however, incontestable that ornament should grow out of the material and find its expression through it. Taste, we think, has declared against this deception, and it is not desirable to revive it again.

On one stand are shown some fine wall-papers which convey a wrong impression of the general restraint and becomingness of the work in the rather strident wall-paper which has been selected for the front of the stand. Many of the wall-paper designs will well repay examination. The range is wide, and includes what is suitable either for large or small rooms. Some of the plain wall-paper surfaces are very agreeable.

There is need generally to urge the value of restraint and of restful background to the dwelling room, and it is a requirement for which the demand is growing, and of which the manufacturer must take note. There is sometimes an over-opulent "profiteer" quality in design which we look to see less of. It is not on "thrills" and the strident but on restfulness and restraint that we should set our backgrounds, which should not coerce us so that we play "second-fiddle" to our walls.

In touching on a few exhibits only, and we could refer to many more of equal interest and importance, we have in view to note certain tendencies which are in many cases good, but sometimes not so good. Where it comes to decorative and applied work, ceiling decoration, wall-papers—wherever ornament directly exercises itself—we see the need for more discipline and restraint, and recognition of those fundamental considerations, that the public largely accepts what is given to it, and that it is better to seek excellence for its own sake than to be too eagerly concerned with what we think the public wants, which very often defeats its own ends.



"The Builder" Stand : Interior.

THE STANDS.

BUILDING CONSTRUCTION, MATERIALS, AND PLANT.

THE Building Trades Exhibition stands out this year as quite the best post-war collection of exhibits connected with the building industry which has been brought together under one roof. Foremost in point of numbers in the construction section is the great variety of concrete-making machinery displayed. Having passed through the periods of the stone and brick ages, we seem to be at the threshold of a new era of construction work, before which stand great and living possibilities shorn of old shibboleths and having new principles which should in the near future bring about a revival of building work, pulsating with new life growing out of the new and awakening conditions of to-day Some twenty-six firms altogether are represented in the concrete machinery exhibits, ranging from the large concrete mixer shown by the Ransome Machinery Co. with hopper and distributing shoot, having elevator and hoist attached, driven by power and capable of turning out a volume of material in one day which would

RANSOME CONCRETE MIXER WITH ELEVATOR.

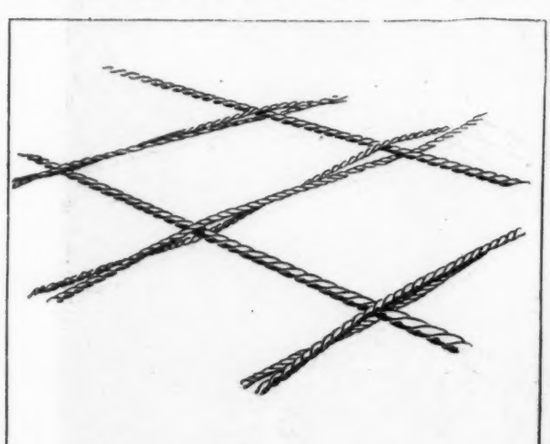
put to shame the whole of one week's efforts of a Roman cohort, on through ranges of concrete-mixing machines, some of which are capable of turning out works of magnitude, down to the small block and slab-making machine operated by hand and which has been designed and made to meet the demands of the smaller housing schemes and estate and oven repair work. In addition to showing the actual machines all the exhibitors in this section show on their stands examples of their work.

THE RANSOME MACHINERY CO. (1920), LTD. (14 and 16, Grosvenor-gardens, S.W.1—Stand 194, Row K), show a belt-driven concrete mixer with hopper and distributing shoot and other equipment; a sectional steel hoist tower and equipment for same; a tar macadam plant; a pile winch for driving or withdrawing piles; also materials for steel sheet piling equipment and a pile helmet for driving concrete piles; and a concrete tip-cart. Their machines and plant have been supplied to county councils, municipalities and quarries, and they will be pleased to forward catalogues on application. One of the most interesting of the machinery exhibits will be found on this stand. As an example of labour-saving machinery capable of turning out works of magnitude it is one of the most complete of its kind in the exhibition.

MESSRS. HILL & CO., LTD. (7, Hobart-place, S.W.1—Stand 78, Row E), have an excellent exhibit showing portable labour-saving machinery, including a model of a dragline cable excavator, electrical and petrol-driven cranes, belt conveyor, and concrete placing equipment, all suitable for large constructional works, for which they can be recommended.

Some excellent examples of reinforced concrete work, together with a collection of photographic enlargements of some of their executed works, are shown on the stand of MESSRS. JOHNSONS' REINFORCED CONCRETE ENGINEERING CO., LTD. (Lever-street, Manchester—Stand 147, Row H). The "Keedon" method of reinforced concrete construction is shown to advantage in a framework exhibit around the stand. The fitments are keyed to the main reinforcing bar on the ordinary wedge principle, thus effecting advantage in design by combining rigid and yet adjustable members with a non-slipping bar. The steel wire "Lattice" reinforcement is exhibited in rolls similar to those in which the material is delivered on the job. This form of reinforcement has been extensively used for floors, roofs, walls, roads, and similar construction. An advantage is that it can be manufactured in pieces to any size to suit customers' requirements. A further interesting exhibit is shown demonstrating the additional lateral strength given to a brick wall by reinforcing it with "Bricktor." The example shown is a 4½ in. wall reinforced in each course and laid on its side between supports giving 7 ft. clear span. Typical examples of the work done by this firm are shown in an excellent display of photographs, and a full description of the systems and an amount of useful information may be gathered from their catalogues and leaflets, which can be had upon application.

MESSRS. BROWN & TAWSE, LTD. (3, London Wall Buildings, E.C.2—Stand 21, Row B, Gallery) show their "B. & T." road reinforcement, which is manufactured from high-grade mild steel wire, cold twisted. The wires, when twisted, form a continuous mechanical bond for the concrete, thereby assisting to distribute the tension over a large area and making slip of the material in the concrete impossible. There are no welded wires liable to alter the structure of the metal, and all wires, owing to the spiral formation, are self-locking and have no corrugations which are liable to set up secondary stresses in the concrete. This type of reinforcement is claimed to be most efficient and economical for road, foundaton, and reinforced concrete structures.



"B. & T." REINFORCEMENT.

THE EXPANDED METAL CO., LTD. (York Mansions, Petty France, S.W.1—Stand 137, Row G), have a good exhibit of their various reinforcements, consisting of examples of slab work reinforced with "Diamond Mesh" expanded steel; brickwork reinforced with "Exmet"; hollow and solid partition construction; expanded metal ceiling grounds; steelwork encasing, &c. The company also exhibit samples of its various products, and particularly a new production, viz., "Rotary Diamond Mesh" expanded steel. The applications of these reinforcements are shown to advantage by means of sections of reinforced concrete floors, beams and lintels, concrete columns, both square and round, formed showing the uses of their well-known metal lathing as applied to columns and suspended ceilings with false beams.

THE SELF-SENTERING EXPANDED METAL WORKS, LTD. (110, Cannon-street, E.C.—Stand 92, Row E), have a comprehensive exhibit of their reinforcement specialities, as follows: "Self-Sentering" is a ribbed expanded metal reinforcement for concrete floors and roofs, entirely eliminating the use of close-boarded timber shuttering. It retains wet concrete, and, therefore, fulfils the two-fold purpose of reinforcement and shuttering. The sectional area of steel is uniform wherever the section is taken. "Trussit" is a corrugated expanded metal steel sheet specially designed for reinforcing concrete walls. It is uniformly expanded in both directions, and when covered with 2 in. of cement plaster gives a wall of equal strength from either side. The uniform distribution of the reinforcement effectively deals with contraction or expansion of the wall due to temperature cracks. It has been approved by the Ministry of Health, and is being used in housing schemes at Ipswich, Norwich, Manchester, Bury St. Edmunds, Bristol, Welwyn, &c. "Herringbone" lath is a metal lath for suspended ceilings or partitions, which will carry firmly across studding at from 16 in. to 20 in. centres. This material requires no strutting, and is quickly and easily fixed. Sheets of "Herringbone" lath are selvedged and interlock, eliminating waste from lapping, and they form sound-proof and fire-resisting ceilings and partitions.

Several of the firms specialising in fireproof floor construction show practical demonstrations of their systems in various thicknesses of floors to suit differing spans of construction.

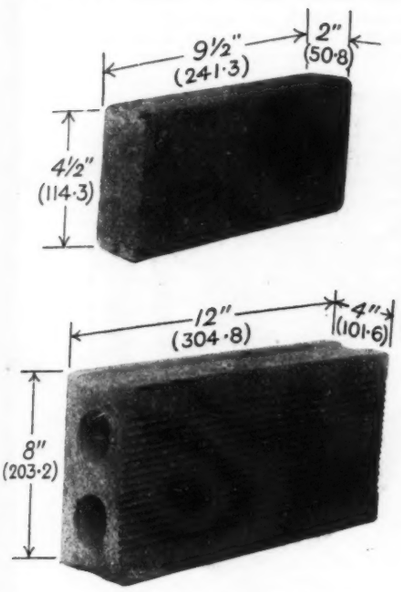
THE TOURBA CONSTRUCTION CO., LTD. (6, Holborn-viaduct, E.C.—Stand 168, Row J) have an exhibit showing their hollow terra-cotta blocks and bricks built as cavity walls. The blocks are 12 in. by 9 in. by 6 in., and therefore save space in construction.

THE SIEGWART FIREPROOF FLOOR CO., LTD. (Thanet House, 231, Strand, W.C.—Stand 1, Row A) exhibit models of their floors, 7½ in. and 5 in. thick, supported on light steel frames encased in concrete, and so far as space allows show the application of the system to a small portion of a daylight factory.

THE KLEINE PATENT FIRE-RESISTING FLOOR SYNDICATE (133-136, High Holborn, W.C.—Stand 109, Row F) show four types of their reinforced hollow brick floors; and also a model of a floor constructed to cover spans of 25 or more feet without intermediate beams or arching, and with only enough cement, mortar or concrete to joint the hollow bricks together into one homogeneous slab. All who see the finished sample floors will recognise them to be lighter than concrete. It is also claimed they can be constructed more rapidly, dry much quicker, are not hygroscopic, are warmer under foot and more sound proof, and possess qualities desirable in a fire-resisting floor.

THE MOLER FIREPROOF BRICK AND PARTITION CO., LTD. (Vickers House, Broadway, Westminster, S.W. 1—Stand 35, Row G) have an exhibit showing the outer walls built up with their partition blocks, 2½ in. thick, with a skimming coat of Keene's or other hard plaster. A section is shown for exterior walling, having ¾ in. of cement rough cast. This material is light in weight, and being porous allows of nails being driven into it. They also show various thicknesses of their blocks. The Company owns large quarries of fine quality Moler at Ejerslev, on the Island of Mors, Denmark. The material is a deep sea deposit of diatome-silex, mixed with alumina, a clay binding material, and can be used for many purposes, but its principal value lies in its efficiency as an insulating medium. Diatomaceous earth (Kieselguhr) has long been used as a base for the manufacture of insulating products, but the difference between its specific gravity and that of clay (the binding material),

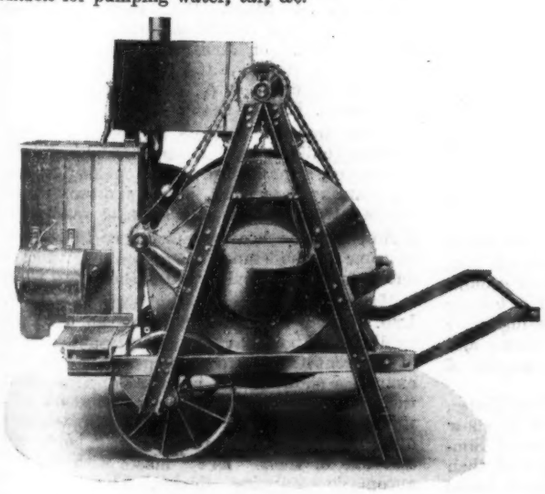
makes it difficult to obtain a perfect mix; whilst in Moler the diatome earth and clay are already mixed by nature. The result of some tests made by the National Physical Laboratory



"MOLER" FIREPROOF BRICKS.

and Messrs. David Kirkaldy show that in addition to the insulating qualities Moler is a fireproof material and is remarkably light and strong.

MESSRS. STOTHERT & PITT, LTD. (11, Victoria-street, S.W 1.—Stand 39, Row C) have a large exhibit showing their well-known "No. 5 Victoria" concrete mixer, with a batch capacity of 42 cubic feet, and a mixed batch of 1 cubic yard; the "No. O Victoria" mixer, which has a smaller capacity than the first mentioned; and a "Standard Victoria H.M." mixer, which is a light-weight portable mixer specially designed and made to meet the demand in connection with housing schemes and estate and repair work. They also exhibit the "Dri-crete" machine for making concrete blocks and partition slabs in various thicknesses, and a pump suitable for pumping water, tar, &c.



THE "VICTORIA H.M." CONCRETE MIXER.

MESSRS. WINGET, LTD. (24, Grosvenor-gardens, S.W.1—Stand 123, Row G), in addition to their well-known machines for making concrete blocks, slabs, and roofing tiles, and the "Chain Spade" concrete mixer, all of which have been largely used in connection with housing schemes in various parts of the country, show also their latest appliances for labour-saving in connection with wagon loaders, elevators, and crushers. They also show their new "Westminster" machine for making blocks, slabs, or bricks. This machine has been made to meet the demands of the smaller builders and estate owners who do not require the larger and more expensive machines, and can be recommended

THE "WINCHESTER" BLOCK-MAKING MACHINE.

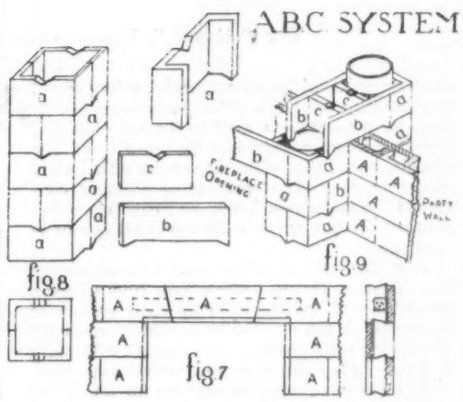
for that purpose. They also show a hopper fitted to their standard mixer for facilitating the feeding of the material from the ground level, samples of a wall built of their blocks and faced with waterproof slurry in several finishes, and a portion of roof covered with tiles made on their machines.

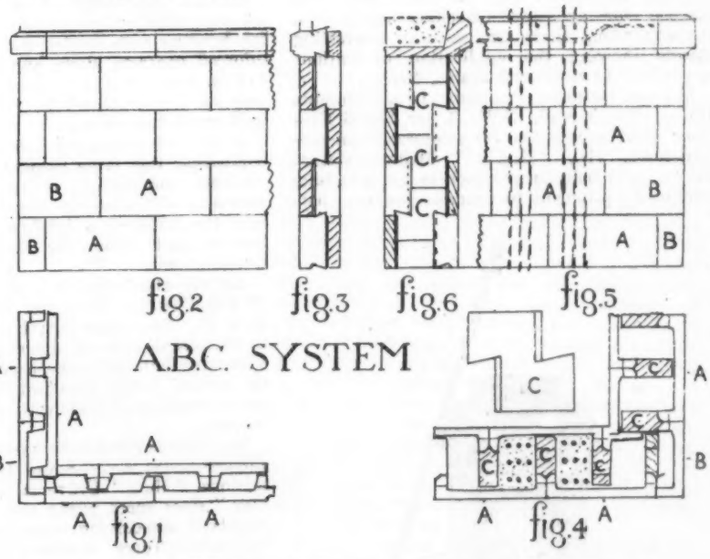
THE AUSTRALIA CONCRETE BLOCK MACHINE SYNDICATE, LTD. (607, Salisbury House, London Wall, E.C.—Stand 114, Row F) show the "Australia" block-making machine, which makes blocks plain or of a T section. An exhibit of their walling showing the various forms made can be seen on the stand. They also show the "Tonkin" mixer, which is made to be driven by power or can be worked by hand. These machines have both been illustrated and described in *The Builder*, and a large number of them are, we are informed, giving every satisfaction on different contracts.

MESSRS. R. H. KIRK & CO (Collingwood House, St. Peters, Newcastle-on-Tyne—Stand 14, Row B) show their patent block maker, which, in addition to making blocks in a variety of sizes, also makes single and double plain or rock-face blocks. They also show their patent mechanical tamper, which is designed to work in conjunction with other block-making machines; and a patent rotary self-balancing screen and washer.

MESSRS. W. BAYLISS & CO., LTD. (240-241, Dashwood House, New Broad-street, E.C.4—Stand 66, Row D) show the latest type of "Bayliss" block and slab-making machine, which is adapted to take iron, wood, or asbestos pallets. The capacity of this machine is limited only by the rate of filling the two mould boxes. It is claimed that the machine turns out 100 blocks, size 18 by 9 by 4½ ins., in one hour.

There are several new systems, and improvements on methods of construction shown, The "A B C" concrete block construction (MR. J. THEWLIS, 2, Manor-terrace, Headingley, Leeds—Stand 73A, Row D), shows a development on interesting lines. The "A B C" concrete block making machine has several adaptable features. The blocks made by this machine have dovetail

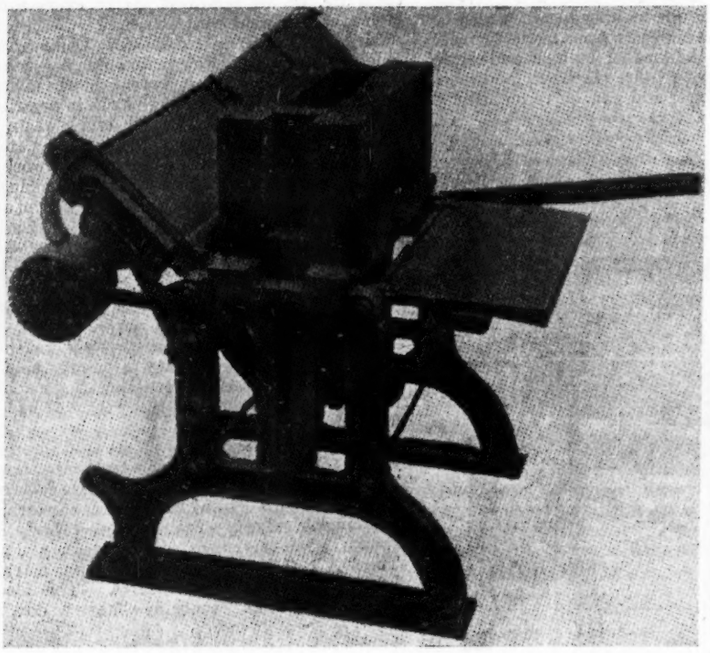




"THEWLIS" SYSTEM OF CONCRETE CONSTRUCTION.

joggles formed in the blocks, which, when fitted together, form a rigid construction, and by inserting plates the machine also produces dovetailed blocks of circular and hexagon shapes suitable for columns and piers.

MESSRS. T. W. ARMSTRONG & SON (10, Dapdune-crescent, Guildford—Stand 77A, Row E) show their "Handy" concrete block and slab-making machine which can be used by



THE "HANDY" BLOCK-MAKING MACHINE.

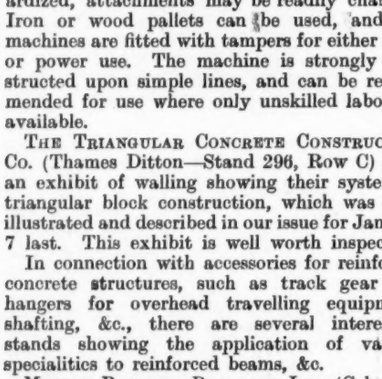
"WHITAKER" MULTIPLE BRICK-MAKING MACHINE.

hand or operated by power, which latter would double the production. The parts being standardized, attachments may be readily changed. Iron or wood pallets can be used, and the machines are fitted with tampers for either hand or power use. The machine is strongly constructed upon simple lines, and can be recommended for use where only unskilled labour is available.

THE TRIANGULAR CONCRETE CONSTRUCTION Co. (Thames Ditton—Stand 296, Row C) have an exhibit of walling showing their system of triangular block construction, which was fully illustrated and described in our issue for January 7 last. This exhibit is well worth inspection.

In connection with accessories for reinforced concrete structures, such as track gear and hangers for overhead travelling equipment, shafting, &c., there are several interesting stands showing the application of various specialities to reinforced beams, &c.

MESSRS. BUILDING PRODUCTS, LTD. (Columbia House, King's-road, S.W. 3. or Stand E)—show their accessories for reinforced concrete structures, viz., "Rigidix" fittings, slotted inserts, and bolt hanger sockets for attaching overhead equipment to concrete beams; bar-bending machines for cold bending of steel rods up to 1¼ in. diameter; bar-cutting machines of various types: "K 4" type for cutting rods up to 1¼ in. diameter; cutter for cutting angles, tees, and rods; and the "Handy" machine for plates. They also show "Prufit" waterproofer in paste form, and their "Bareau" powder waterproofer, "Ferrolithic" slow hardener, and other specialities, and also "Universal" spraying machine.



THE "UNIVERSAL" SPRAYING MACHINE.

MESSRS. R. G. WHITAKER, LTD. (Ceres-road, Kingston-on-Thames—Stand 118, Row F) show their "R.G.W." machines for making concrete blocks and slabs, and also a multiple brick-making machine and a machine for making fence posts or lintels.

MESSRS. KENNEDY (West Drayton—Stand 46, Row E) show their various types of machines for bending rods, angles and channels for reinforced concrete work, and tubes from ⅜ in. to 2 in. bore. The metal is bent cold and in the case of tubes unloaded. These machines are well worth inspection.

What strikes one in examining and comparing this large display of labour-saving concrete machinery, is the ingenuity and freshness displayed in many of the systems, and the hope of a brighter outlook in the present and future for this newer form of construction.

An important exhibit is shown on the stand of the CEMENT MARKETING Co. (Stand 110, Row F). They show samples of cement ground to various degrees of fineness; and a testing apparatus for use in connection with testing under the revised British Standard Specification; and also a crushing machine with various samples of cement.

THE BRITISH STEEL PILING Co. (Dock House, Billiter-street, E.C.—Stand 181, Row J) show sections of their "Universal Joist" and "Simplex" steel sheet piling and a model of their standard pile-driving frame operating a model McKiernan-Terry double-acting hammer for driving and withdrawing piles. They also show their "Zenith" concrete mixer and the "Zenith Pup" mixer which has been specially designed for use on smaller works, for which purpose it is admirably suited.

Prominent among the firms making specialities for rendering cement and concrete waterproof, Messrs. KERNER-GREENWOOD (King's Lynn—Stand 43, Row C) have exhibits showing practical applications of their well known "Pudlo" powder. "Anti-Hydro" is another of these specialities, which has been used in America as well as in this country, and is shown by THE ADAMITE Co., LTD. (Regent House, Regent-street, W. 1—Stand 149, Row H).

In connection with specialities, The GALVANISING EQUIPMENT Co. (29A, Portpool-lane, E.C. 1—Stand 36, Row C) have a capital exhibit on their stand attractively set out in glass cases and showing a large variety of specialities treated by their process.

MESSRS. FERODO, LTD. (Chapel-en-le-Frith—Stand 55, Row D) have an exhibit which they demonstrate on their stand of a new material made of fibre and called "Feroleum," used in connection with stair treads.

The section dealing with felts and underlining is well set out on the stands of the WILLESDEN PAPER & CANVAS Co. (Willesden Junction, N.W. 10—Stand 104, Row F), and also of MESSRS. F. MCNEILL & Co., LTD. (4, Southplace, E.C. 4—Stand 177, Row J). Other exhibits showing roofing materials are on view on the stands of MESSRS. VULCANITE, LTD. (Blackfriars House, E.C.—Stand 96, Row E.), and The RUBEROID Co., LTD. (81–83, Knightrider-street, E.C. 4—Stand 132, Row G.)

There are also a large number of stands showing builders' and contractors' plant and machinery, some for use in road-making, including tarmacadam plant, steam and motor road rollers, steam wagons and sleeping vans.

Amongst the heavier machinery to be seen on some of the stands there are pile winches and helmets for driving and withdrawing piles.

MESSRS. BUILDERS' & CONTRACTORS' PLANT, LTD. (Stand 120, Row F) have an excellent exhibit of labour-saving machines and devices of different types and patterns. They exhibit examples showing the practical application of their "Fircrete" timber clip clamped on to a timber tower. They also show in working order two patterns of their "Exe" hoist, and also one of their "Exe" hoists with jib and automatic stopping device. Their "Exe" principle is further shown in two portable hoists specially designed for works in connection with housing schemes. They also show the "Roll" concrete mixer and the "Ama" concrete block machine. This latter machine requires no specially shaped pallets, and is provided with a spring regulated mechanical tamper. Two portable units with oil engine and a "Z" oil engine are shown, also their "Klipit" light steel barrow and "Blackmore" adjustable ladder bracket.

Scattered about in various parts of the exhibition will be found a variety of special devices for use in connection with adjustable

and collapsible ladders and cradles, and other scaffolding and plant. In this connection may be mentioned the stands of GRIPWELL STAGING CO. (2, Malton-street, S.E. 18—Stand 214, Row K), the ACME LADDER CO. (364, Garratt-lane, S.W. 18—Stand 164, Row J), Messrs. DREW, CLARK & CO. (Lea Bridge-road, N.E.—Stand 198, ROW K), and others are well worth an inspection.

There is a capital show on the stands making a display of woodworking machinery and machine tools, comprising nearly every variety of machine required for turning out the many fitments required in this branch of building. Commencing with the merchants' stands of timber showing the raw material, one can follow the various processes gone through on circular and band sawing benches, planers, thicknessing and mortising machines, spindle and boring machines, &c., to the dovetailing and moulding machines for turning out the finest cabinet work. Prominent in the woodworking machinery exhibits are the stands of MESSRS. HAIGHS (OLDHAM), LTD. (Stand 37, Row K), MESSRS. WADKIN & CO. (North Evington, Leicester—Stand 197, Row K), MESSRS. PERKIN & CO., LTD. (Leeds—Stand 72, Row, D), J. SAGAR & CO., LTD. (Halifax—Stand 2, Row A), J. A. VICTOR (31, Budge-row, E.C. 4—Stand 213, Row K), The HOLLIS WOOD TRIMMING CO. (Wilde-green, Birmingham—Stand 157, Row H) —firms of repute turning out machines all of which can be recommended. In this connection there is an interesting exhibit on the stand of MESSRS. J & M. STEINGOLD (23, City-road, E.C.—Stand 71, Row D), showing their "Simplex" system for the treatment of wooden floors or ship decks, &c.

Turning to the stands showing the finished products, there will be found a collection of high-class interior woodwork and furniture, comprising examples of staircase and panelled rooms, interior and panelling for fire places, plain and revolving doors, windows, examples of turned and moulded work, balusters, &c., folding and sliding screens, and wood mantels and garden gates and fences.

Prominent among the stands showing high-class interior woodwork will be found the well-known firm of MESSRS. SAMUEL ELLIOTT & SONS (READING), LTD. (Stand 183, Row J), and also two stands occupied by MESSRS. ROBERT JOHNSON & CO. (LEICESTER), LTD., showing an excellent exhibit of their furniture and cabinet work.

Dealing with what may be termed accessories, BRITISH GREYWOOD (Castle Headingham, Essex—Stand 40, Row C) have an interesting exhibit of a new material showing it applied to both interior and exterior work, whilst the stands showing RONUK and VENESTA are well worth visiting.

In the shopfitting section the stands are represented by such well-known firms as MESSRS. E. POLLARD & CO., LTD. (29, Clerkenwell-road, E.C. 1—Stand 146, Row H), and MESSRS. SAGE & Co., both of whom have capital exhibits.

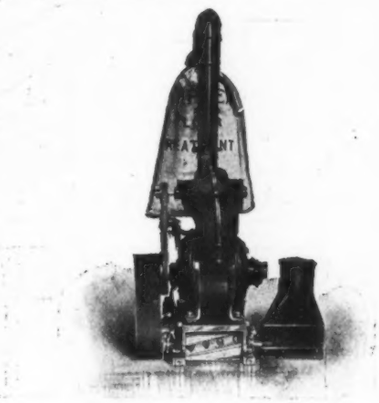
Stands showing bricks, both plain and glazed, and ordinary plain and interlocking tiles are well to the fore.

MESSRS. S. H. COLLIER, LTD. (Reading—Stand 193, Row J), have an exhibit showing examples of their well-known bricks and hand-made roofing tiles, built in the form of a pavilion, the interior having an old English fireplace built of their red briquettes.

The SUSSEX BRICK AND ESTATES CO., LTD. (Southwater—Stand 188, Row J), have an exhibit showing their Weald clay and "Southwater" engineering bricks, whilst the HEMEL HEMPSTEAD PATENT BRICK CO., LTD. (Hemel Hempstead—Stand 152A, Row H), have a stand showing their hollow partition blocks and floor tiles.

The SOMERSET TRADING CO. have an interesting display on their stand of interlocking, Roman, and other forms of tiling, as have also the firms of COLTHURST, SYMONDS & CO., LTD., and MESSRS. H. & J. MAJOR, LTD.

The marble section is represented by such well-known firms as MESSRS. ANSELM, ODLING & SONS, LTD. (132, New North-road, N. 1—Stand 101, Row F), and MESSRS. FENNING & Co., both of whom have good exhibits of decorative marble work. The stand of MESSRS. PERCY C. WEBB is also worth seeing, whilst examples of composition flooring are exhibited by THE WILFLEY CO. (Salisbury House, London Wall, E.C.—Stand 141, Row H), who show their well-known "Marbolith" flooring, and also by C. W. LANGMAN, LTD.



"SIMPLEX" FLOOR PLANER.

Prominent among the newer construction materials will be found many stands showing examples of the application of asbestos and cement sheets, both plain and corrugated, applied as a covering to roofs and the exteriors and interiors of walls. The material is manufactured in natural colour as well as in greys, blues, reds and other colours, and gives a bright and cheerful appearance. It is very suitable for use in bungalows, &c.

THE BRITISH ROOFING CO., LTD. (150, Southampton-row, W.C. 1—Stand 67, Row D), show their "Alligator" asbestos cement corrugated roofing in natural colour. This can also be supplied in red and other colours. One side of the roof is covered with their corrugated sheeting in natural colour and the opposite slope with their red tiles, and the ends with natural and coloured sheets. They also show various types of underlining and roofing felts, also bitumen dampcourses. The materials are very suitable for bungalows, &c. MESSRS. FLETCHER, HOTTON & CO., representing the BURTON FOUNDRY CO., also show on the same stand mantel registers and grates, with curbs and surrounds, also the "Burton" portable copper.

MESSRS. G. R. SPEAKER & CO. (Eternit House, Stevenage-road, S.W. 6—Stand 138, Row G), have an excellent exhibit showing a building constructed on their well-known "Trellit" principle in various stages. The structure is of light steel framework, with wall and ceiling crosspieces covered with "Eternit" sheets, forming a rigid wall with 5 in. airspace. These frameworks are assembled at the Company's works in entire sectional units of complete walls or ceilings up to 40 ft. long "contracted" on the patent "Trellit" system and packed in sections, capable of being re-expanded on site in a few minutes and roof trusses placed in position. The roof is of welded steel trusses and purlins, boarded and covered with "Eternit" tiles. An advantage of this system of construction is that any section or truss is light enough to be handled and fixed by two unskilled men, thus saving labour both in handling and in respect of speed with which the buildings can be erected, viz., three days for framework and three weeks for foundations, drainage, brick work to chimneys, and fixing "Eternit" sheets and tiles, and distempering internal walls and ceilings. Demonstrations of the erection of this framework are given, to show the speed and ease with which such a building can be framed up.

The "Doric" system of construction, which is illustrated and described on page 488, is shown to advantage by the MODERN BUILDING CO. (Brighton—Stand 182, Row J.).

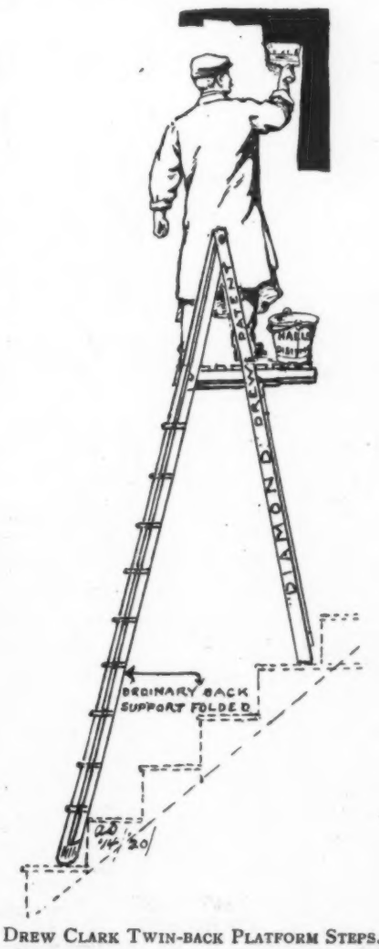
Somewhat allied to this are the firms showing building board in various materials, forms and colours suitable for the interior lining or panelling of rooms and ceilings. The BRITISH URALITE CO. have a stand showing the application of this.

THE BEAVER BOARD CO. also have a good exhibit. THE THAMES PAPER CO., LTD. show the application of their "SX" board in a number of model rooms, and MESSRS. MCANDREWS & FORBES have a stand showing their well-known "Fiberlic" displayed as wall linings in some well-decorated rooms.

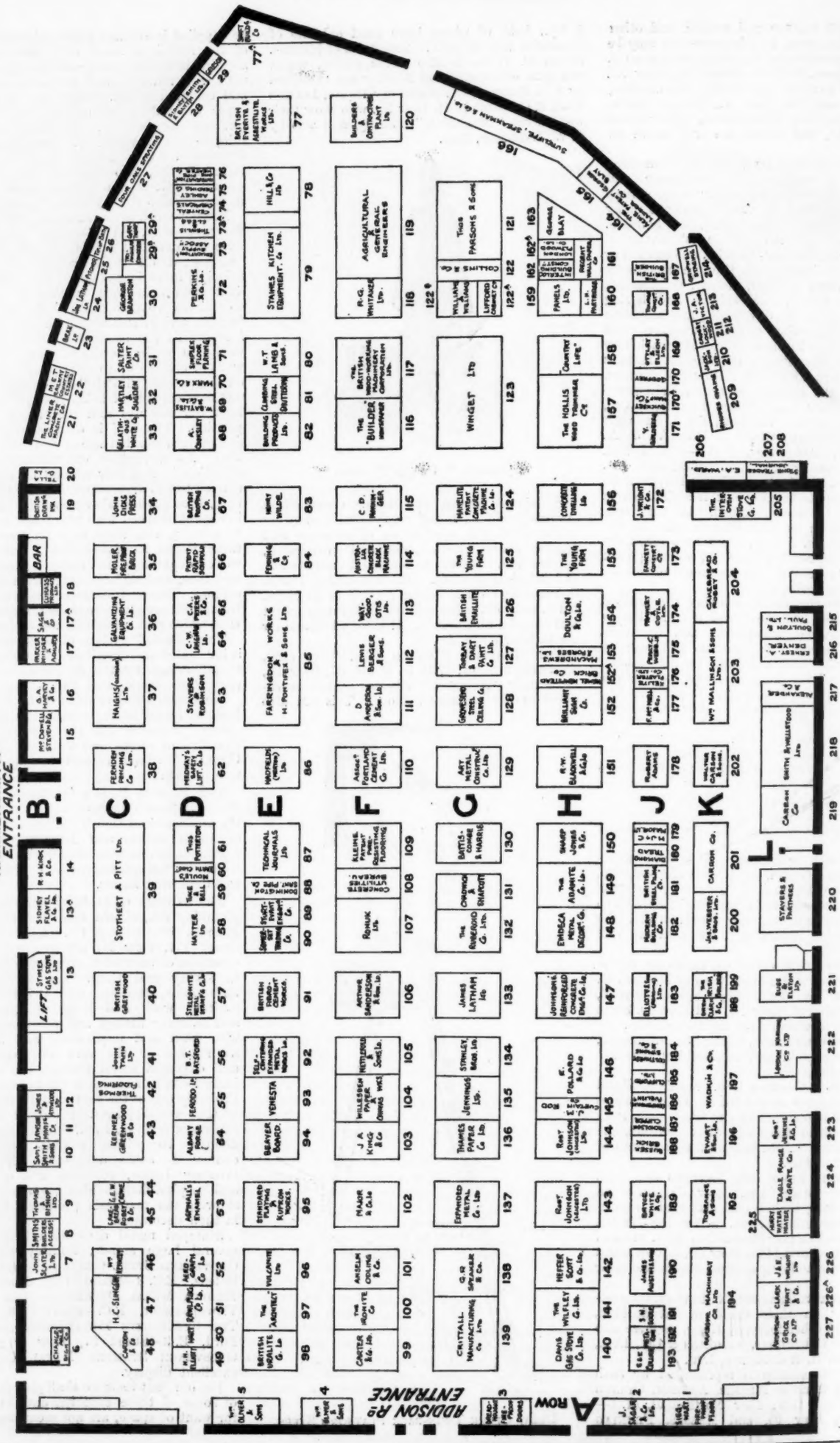
The exhibits of sanitary ware and internal plumbing &c., shown upon the fine stand of MESSRS. DOULTON & CO. (Lambeth, S.E. 1—Stand 154, Row H) are amongst the finest examples of their kind, displaying the last word in luxury and taste. The series of model bath rooms, fitted with all that is best in modern sanitary work and including their hygienic and sanitary fittings and accessories, together with hard and impervious wall linings, such as marble or tile, and the application of dull oxydized metal fittings, are examples of immense labour-saving in the upkeep of a house. Probably one of the best exhibits in this section is the well-displayed stand of MESSRS. A. PONTIFEX & SONS, LTD., showing their sanitary fittings, comprising marble and porcelain enamelled baths and other fittings, fitted lavatory basins, syphonic and other W.C.'s, and hospital fittings—besides a series of rooms showing the materials produced by this firm in their decoration.

Stamped metal decoration is displayed on several large stands, notably those of the GROVESEND STEEL CEILING CO. (29, Great St. Helens, E.C. 3—Stand 128, Row G); THE EMDECA METAL DECORATION CO. (97, Queen Victoria-street, E.C.—Stand 148, Row H); THE STELEONITE METAL STAMPING CO. (Old Ford, E. 3—Stand 57, Row D); and THE GROSVENOR STAMPED METAL CO. have an excellent display.

[In our next issue we shall give further notice of some of these exhibits, and others, which for want of space, are not mentioned now.]



DREW CLARK TWIN-BACK PLATFORM STEPS.



The Building Trades Exhibition: Ground Floor Plan.

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The Building Trades Exhibition: Ground Floor Plan.

1921.